

**REMARKS**

Applicant hereby traverses the outstanding objections and rejections, and requests reconsideration and withdrawal in light of the amendments and remarks contained herein. Claims 2, 10, 14, and 18 have been canceled without prejudice. Claim 1 has been amended to correct a typographic error. Claims 1, 3-9, 11-13, 15-17, and 19-22 are pending in this application. Applicant specifically traverses the Examiner's response on page 2 of the Office Action for reasons detailed below.

**Rejection under 35 U.S.C. § 103**

Claims 1, 6, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitchin et al.* (U.S. Patent No. 5,319,702, hereinafter *Kitchin*) in view of European Patent Publication EP 1093310 to *Ahmadi*.

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claim 1 defines a method that includes the element of training said artificial neural network to an ADSI standard to provide a trained artificial neural network system. Neither *Kitchin* nor *Ahmadi* teach or suggest at least this element of claim 1. The Examiner admits that *Kitchin* "don [sic] not disclose expressly the details of the method of training the ANN." Office Action, page 4, paragraph 2. *Ahmadi* does not cure this deficiency. The Examiner admits that *Ahmadi* does not teach or suggest using an ADSI interface. Office Action, page 16, paragraph 4. The training algorithm of *Ahmadi* discloses "starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error." *Ahmadi*, Col. 11, lines 9-13. The Examiner states that "since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs

representative of the ADSI environment is required to be selected by a trainer....” Office Action, page 4, paragraph 3. That *Ahmadi* teaches “applying a realistic set of inputs” does not cure the deficiency of *Ahmadi* with respect to claim 1, because *Ahmadi* does not teach or suggest training an artificial neural network to an ADSI standard. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 1 is patentable over the 35 U.S.C. § 103(a) rejection of record.

The method of claim 1 also includes the element of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. The Examiner admits that *Ahmadi* does not disclose “explicitly determining call progress tones to determine the state of a telephony call.” Office Action, page 6, paragraph 2. The Examiner states that *Ahmadi* provides “employing the neural network to determine DTMF and call progress tones.” Office Action, page 4, paragraph 1. Applicant notes that the statement of *Ahmadi*’s teaching does not teach or suggest the claimed limitation of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. Furthermore, the cited passages of *Ahmadi*, col. 2, lines 39-54; col. 10, lines 3-30; col. 12, lines 7-9; col. 20, lines 27-37; col. 21, lines 21-27; col. 23, lines 34-39, do not disclose the claimed limitation either. *Kitchin* is not relied upon as teaching or suggesting this element of claim 1. Thus, the references do not teach all of the claimed limitations. Accordingly, Applicant asserts that claim 1 is patentable over the 35 U.S.C. § 103(a) rejection of record.

The method of claim 1 further includes the element of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls, wherein said trained neural network system determines the call progress tones in the presence of near end speech to optimize talkoff and talkdown performance. The Examiner cites to *Ahmadi*, col. 1, lines 37-53 as support for the statement that “Ahmadi teaches detecting signaling tones accurately in talk-off, cur-through [sic], or both by maintaining low error rates.” Again, Applicant notes that this statement does not teach or suggest this element of claim 1. Furthermore, col. 1, lines 37-53 do not teach the element either. *Kitchin* is not relied upon as teaching or suggesting this limitation. Thus, the combination of *Kitchin* and *Ahmadi* does not teach the limitation. Accordingly, because the cited references do not teach or suggest all of the limitations of claim 1, the claimed subject

matter is not obvious over the cited references. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 1 to allowance.

Applicant notes that in paragraph 4, the Examiner has stated that “[c]laims 6 and 12 are essentially similar to claim...[sic]” Applicant assumes that the Examiner has intended to assert that claim 6 and 12 are essentially similar to claim 1. Applicant respectfully notes that this is incorrect, as claims 6 and 12 have different scopes and limitations compared to claim 1.

Claim 6 defines training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard, wherein the training comprises adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. Neither *Kitchin* nor *Ahmadi* teach or suggest at least this element of claim 6. The Examiner admits that *Kitchin* “don [sic] not disclose expressly the details of the method of training the ANN.” Office Action, page 4, paragraph 2. *Ahmadi* does not cure this deficiency. The Examiner admits that *Ahmadi* does not teach or suggest using an ADSI interface. Office Action, page 16, paragraph 4. The training algorithm of *Ahmadi* discloses “starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error.” *Ahmadi*, Col. 11, lines 9-13. The Examiner states that “since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer...” Office Action, page 4, paragraph 3. That *Ahmadi* teaches “applying a realistic set of inputs” does not cure the deficiency of *Ahmadi* with respect to claim 6, because *Ahmadi* does not teach or suggest training an artificial neural network to an ADSI standard. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 6 is patentable over the 35 U.S.C. § 103(a) rejection of record.

The method of claim 6 also includes the element of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. The Examiner admits that *Ahmadi* does not disclose “explicitly determining call progress tones to determine the state of a telephony call.” Office Action, page 6,

paragraph 2. The Examiner states that *Ahmadi* provides “employing the neural network to determine DTMF and call progress tones.” Office Action, page 4, paragraph 1. Applicant notes that the statement of *Ahmadi*’s teaching does not teach or suggest the claimed limitation of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. Furthermore, the cited passages of *Ahmadi*, col. 2, lines 39-54; col. 10, lines 3-30; col. 12, lines 7-9; col. 20, lines 27-37; col. 21, lines 21-27; col. 23, lines 34-39, do not disclose the claimed limitation either. *Kitchin* is not relied upon as teaching or suggesting this element of claim 6. Thus, the references do not teach all of the claimed limitations. Accordingly, Applicant asserts that claim 6 is patentable over the 35 U.S.C. § 103(a) rejection of record. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

Claim 12 defines an apparatus comprising a trained neural network system for determining call progress tones from an input signal associated with said telephony call and the state of said telephony call based on said call progress tones, wherein the determining call progress tones conforms to an ADSI standard. The Examiner admits that *Ahmadi* does not disclose “explicitly determining call progress tones to determine the state of a telephony call.” Office Action, page 6, paragraph 2. The Examiner states that *Ahmadi* provides “employing the neural network to determine DTMF and call progress tones.” Office Action, page 4, paragraph 1. Applicant notes that the statement of *Ahmadi*’s teaching does not teach or suggest the claimed limitation of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. Furthermore, the cited passages of *Ahmadi*, col. 2, lines 39-54; col. 10, lines 3-30; col. 12, lines 7-9; col. 20, lines 27-37; col. 21, lines 21-27; col. 23, lines 34-39, do not disclose the claimed limitation either. *Kitchin* is not relied upon as teaching or suggesting this element of claim 6. Thus, the references do not teach all of the claimed limitations. Accordingly, Applicant asserts that claim 6 is patentable over the 35 U.S.C. § 103(a) rejection of record. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

**Rejection under 35 U.S.C. § 103**

Claims 1, 3-5, 12-13, and 15-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett et al.* (U.S. Patent No. 5,311,589, hereinafter *Bennett*).

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Regarding claim 1, the Examiner admits that *Ahmadi* does not disclose “explicitly determining call progress tones to determine the state of a telephony call.” Office Action, page 6, paragraph 2. Claim 1 defines a method that includes the element of training said artificial neural network to an ADSI standard to provide a trained artificial neural network system. *Ahmadi* does not teach or suggest this element of claim 1. The Examiner admits that *Ahmadi* does not teach or suggest using an ADSI interface. Office Action, page 16, paragraph 4. The training algorithm of *Ahmadi* discloses “starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error.” *Ahmadi*, Col. 11, lines 9-13. The Examiner states that “since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer....” Office Action, page 4, paragraph 3. Training a neural network to an ADSI standard does not intrinsically require that a realistic set of inputs representative of the ADSI environment be used. That *Ahmadi* teaches “applying a realistic set of inputs” does not cure the deficiency of *Ahmadi* with respect to claim 1, because *Ahmadi* does not teach or suggest training an artificial neural network to an ADSI standard. *Bennett* does not cure the deficiencies of *Ahmadi*. Thus, the references do not teach the claimed limitation.

The method of claim 1 also includes the element of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls, wherein said trained neural network system determines the call progress tones in the presence of near end speech to optimize talkoff and talkdown performance. The Examiner cites to *Ahmadi*, col. 1, lines 37-53 as support for the statement that “Ahmadi teaches detecting signaling tones accurately in talk-off, cur-through [sic], or both by maintaining low error rates.” The cited text does not teach or suggest the cited element of claim 1. *Ahmadi* does not teach the limitation. *Bennett* does not cure this deficiency. Accordingly, because the cited references do not teach or suggest all of the limitations of claim 1, the claimed subject matter is not obvious over the cited references. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 1 to allowance.

Regarding claim 12, Applicant respectfully traverses the Examiner’s statement that claim 12 is essentially similar to claim 1. Applicant respectfully notes that this is incorrect, as claim 12 has different scopes and limitations compared to claim 1.

Claim 12 defines an apparatus comprising a trained neural network system for determining call progress tones from an input signal associated with said telephony call and the state of said telephony call based on said call progress tones, wherein the determining call progress tones conforms to an ADSI standard. Neither *Kitchin* nor *Ahmadi* teach or suggest this element of claim 12. The Examiner admits that *Ahmadi* does not teach or suggest using an ADSI interface. Office Action, page 16, paragraph 4. *Kitchin* is not relied upon as teaching this limitation. *Bennett* does not cure the deficiencies of *Kitchin* and *Ahmadi* and is not relied on as teaching or suggesting an ADSI standard. Thus, the references do not teach the claimed limitation.

Further, the Examiner admits that *Ahmadi* does not disclose “explicitly determining call progress tones to determine the state of a telephony call.” Office Action, page 6, paragraph 2. The Examiner states that *Ahmadi* provides “employing the neural network to determine DTMF and call progress tones.” Office Action, page 4, paragraph 1. Applicant asserts that *Ahmadi* does not teach or suggest an apparatus comprising a trained neural network system for determining call progress tones from an input signal associated with said

telephony call and the state of said telephony call based on said call progress tones, wherein the determining call progress tones conforms to an ADSI standard. Also, the cited passages of *Ahmadi*, col. 2, lines 39-54; col. 10, lines 3-30; col. 12, lines 7-9; col. 20, lines 27-37; col. 21, lines 21-27; col. 23, lines 34-39, do not disclose the claimed limitation. *Kitchin* is not relied upon as teaching or suggesting this element of claim 12. *Bennett* does not cure the deficiencies of *Kitchin* and *Ahmadi*. Thus, the references do not teach the claimed limitation. Accordingly, Applicant asserts that claim 12 is patentable over the 35 U.S.C. § 103(a) rejection of record. Applicant respectfully asserts that claim 12 is not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass claim 12 to allowance.

Claims 3-5, 13, and 15-16 depend from claims 1 and 12, respectively, and therefore contains all limitations of the base claims. Accordingly, all of the limitations of claims 3-5, 12, and 15-16 are not taught or suggested by the cited references. Applicant respectfully asserts that claims 3-5, 12, and 15-16 are not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

### **Rejection under 35 U.S.C. § 103**

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett*, and further in view of *Li* (U.S. Patent No. 6,549,587).

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claim 6 defines training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard, wherein the training comprises adjusting one or more artificial neural network

parameters until an error rate is at or below a predetermined error rate. *Ahmadi* does not disclose this limitation. The training algorithm of *Ahmadi* teaches adjusting until “the error cannot be reduced further.” *Ahmadi*, col. 11, lines 13-14. Thus *Ahmadi* does not teach or suggest all elements of claim 6.

The method of claim 6 also includes the element of providing an artificial neural network system for determining call progress tones from an input signal associated with said telephony calls. The Examiner cites to *Ahmadi*, col. 1, lines 37-53 as support for the statement that “*Ahmadi* teaches detecting signaling tones accurately in talk-off, cur-through [sic], or both by maintaining low error rates.” The cited text does not teach or suggest the cited element of claim 6. Accordingly, the cited references do not teach or suggest all of the limitations of claim 6.

Claim 6 defines a method that also includes the element of training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard. *Ahmadi* does not teach or suggest this element of claim 6. The Examiner admits that *Ahmadi* does not teach or suggest using an ADSI interface. Office Action, page 16, paragraph 4. The training algorithm of *Ahmadi* discloses “starting with a random set of weights, applying a realistic set of inputs, determining an error by comparing the actual output to the desired outputs, and adjusting the weights according to the error.” *Ahmadi*, Col. 11, lines 9-13. The Examiner states that “since training the ANN is intrinsic to its operation in a new application environment, such as an ADSI environment, a realistic set of inputs representative of the ADSI environment is required to be selected by a trainer....” Office Action, page 4, paragraph 3. Training a neural network to an ADSI standard does not intrinsically require that a realistic set of inputs representative of the ADSI environment be used. That *Ahmadi* teaches “applying a realistic set of inputs” does not cure the deficiency of *Ahmadi* with respect to claim 6. Thus, the references do not teach the claimed limitation. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

Neither *Bennett* nor *Li* cure the deficiencies of *Ahmadi*. The *Bennett* method of detecting DTMF tones as well as call progress tones, and the telephone network simulator of *Li* do not teach or suggest the claim 6 limitation of training said artificial neural network



system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard, wherein the training comprises adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. None of the cited references teach or suggest ADSI standards, and none of the references teach or suggest adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. Accordingly, because the cited references do not teach or suggest all of the limitations of claim 6, the claimed subject matter is not obvious over the cited references. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 6 to allowance.

**Rejection under 35 U.S.C. § 103**

Claims 17, 20-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett*, and further in view of *Li*, and further in view of *Moses et al.* (U.S. Patent No. 5,532,950, hereinafter *Moses*).

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claim 17 comprises the element of a means for training said artificial neural network system to conform to an ADSI standard using a telephone simulator. As stated by Applicant above, *Ahmadi* in view of *Bennett*, and further in view of *Li* does not teach or suggest ADSI standards. The back-propagation algorithm of *Moses* goes not cure this deficiency. Accordingly, because the cited references do not teach or suggest all of the limitations of claim 17, the claimed subject matter is not obvious over the cited references. Applicant respectfully requests that the Examiner withdraw the rejection of record and pass claim 17 to allowance.

Claims 20-22 depend from claim 17, and therefore contain all limitations of the base claims. Accordingly, all of the limitations of claims 20-22 are not taught or suggested by the cited references. Applicant respectfully asserts that claims 20-22 are not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

### **Rejection under 35 U.S.C. § 103**

Claims 7, 9, 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett*, and further in view of *Li*, and further in view of *Moses*.

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claims 7, 9, and 11 depend from claim 6. As discussed above, claim 6 is not obvious over *Ahmadi* in view of *Bennett*, further in view of *Li*. *Moses* does not cure the deficiencies of these references by teaching or suggesting the claim 6 limitation of training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard, wherein the training comprises adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. None of the cited references teach or suggest ADSI standards, and none of the references teach or suggest adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. Because claims 7, 9, and 11 depend from claim 6, they contain all of the limitations of the base claim. Accordingly, all of the limitations of claims 7, 9, and 11 are not taught or suggested by the cited references. Applicant respectfully asserts that claims 7, 9, and 11 are not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

**Rejection under 35 U.S.C. § 103**

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett*, and further in view of *Li*, and further in view of *Weser et al.* (U.S. Patent No. 6,104,803, hereinafter *Weser*).

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claim 8 depends from claim 6. As discussed above, claim 6 is not obvious over *Ahmadi* in view of *Bennett*, further in view of *Li*. *Weser* does not cure the deficiencies of these references by teaching or suggesting the claim 6 limitation of training said artificial neural network system using a telephone network simulator to determine call progress tones from a plurality of signals to an ADSI standard, wherein the training comprises adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. None of the references teach or suggest adjusting one or more artificial neural network parameters until an error rate is at or below a predetermined error rate. Because claim 8 depends from claim 6, it contains all of the limitations of the base claim. Accordingly, all of the limitations of claim 8 is not taught or suggested by the cited references. Applicant respectfully asserts that claim 8 is not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

**Rejection under 35 U.S.C. § 103**

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Ahmadi* in view of *Bennett*, and further in view of *Li*, and further in view of *Moses* and further in view of *Weser*.

To establish a prima facie case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the first or second criteria, Applicant respectfully asserts that the references do not teach or suggest all the claim limitations.

Claim 19 depends from claim 17. As discussed above, claim 17 is not obvious over *Ahmadi* in view of *Bennett*, further in view of *Li*. *Weser* and *Moses* do not cure the deficiencies of these references by teaching or suggesting the claim 17 limitation of a means for training said artificial neural network system to conform to an ADSI standard using a telephone simulator. Because claim 19 depends from claim 17, it contains all of the limitations of the base claim. Accordingly, all of the limitations of claim 19 are not taught or suggested by the cited references. Applicant respectfully asserts that claim 19 is not obvious over the cited references and requests that the Examiner withdraw the rejection of record and pass these claims to allowance.

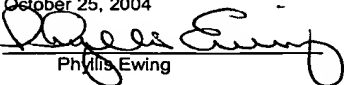
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 08-2025, under Order No. 10991539-1, from which the undersigned is authorized to draw.

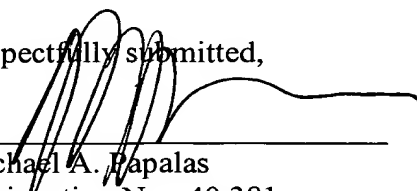
Dated: October 25, 2004

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV482734134US, in an envelope addressed to: MS AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: October 25, 2004

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